## REMARKS

The present invention results from the discovery that by using an encoder dedicated to interframe production and an encoder dedicated to intraframe production, a video data transmission and reception system can more efficiently and easily allow a user to switch between two videos back and froth without disturbing the user's ability to view either video. As can be appreciated video transmission and reception systems is a crowded field. Thus, consumers have numerous choices when it comes to choosing the appropriate system to use and can be increasingly discriminatory towards the latest and greatest features. Therefore, any feature, no matter how small may provide the crucial difference between commercial viability and commercial failure.

> Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light.
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> *Continental Can Co. USA Inc. v. Monsanto Co.*, 20 U.S.P.Q. 2d. 1746, 1752 (Fed. Cir. 1991)

The present invention is directed toward a video data transmission and reception system in which a user can select between two different video sources with relative ease at a low cost. (Pg. 1, lns 2-4, Pg. 3, ln.15 – Pg. 6, ln. 8). It accomplishes this by using an encoder 14 comprising a DCT unit 143 and a Quantization Unit 144 which generates interframe data such as B and P frames and a DCT unit 141 and Quantization Unit 142 which generates intraframe data such as "I" frames. The interframe data and the "I" frames are combined to form broadcast video data. The "I" frames are also used as substitute "I" frame. (Pg. 41, lns. 9 – 23; Fig. 4) When a user switches from a broadcast video data 111 to an on-demand video data 112 and then switches back from an on-demand video data 112 to broadcast video data 111, the substitute "I"

frame is sent to the user along with the broadcast video data. This ensure that the user can view the broadcast video data since the user will be ensured of having an "I" frame so that the B and P frames can be viewed correctly without having to wait for the natural display of the next "I" frame data in the broadcast video data. (Pg. 7, ln. 14 – Pg. 8, ln. 22).

The configuration of the present invention is advantageous since the DCT unit 143 and the Quantization Unit 144 only generate interframe data so that "I" frames are not redundantly duplicated. This allows a conventional encoder to be used and also for a reduced amount of hardware to be used. In turn this reduces costs of the system and utilizes a more efficient processing of the broadcast video data while allowing the user to easily switch between two different broadcast systems.

The Office Action objected to the specification due to informalities. Applicant has amended the specification to overcome the objection.

The Office Action objected to Claim 2 because the phrase "a transmission unit" is repeated. Applicant has amended the Claim to overcome the objection.

The Office Action rejected Claim 17 under 35 U.S.C. §101 because Claim 17 claims "a program." Applicant has amended the claim to overcome the rejection.

The Office Action rejected Claims 1, 10-17 under 35 U.S.C. §102(e) as being anticipated by *Satoda* (U.S. Patent App. No. 2002/0147980).

> [T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from the prior art reference's teaching that every claim [limitation] was disclosed in that single reference.
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> *Dayco Prods., Inc. v. Total Containment, Inc.*, F.3d 1358, 1368 (Fed. Cir. 2003).

*Satoda* is directed towards a contents distribution system which selects based on a request from a user terminal, an appropriate frame for transmission from among the generated frames. (Abstract)

*Satoda* does not teach or suggest "a first encoding unit applying interframe encoding processing to a plurality of frames of moving image data, to generate only interframe frame data for the video data." *Satoda* teaches the use of an intraframe coding unit 22 and an interframe coding unit 23. The Office Action cites to interframe coding unit 23 as the first encoding unit. However, interframe coding unit 23 does not only generate interframe frame data. As noted in Paragraph 127 of *Satoda*, interframe coding unit 23 inserts an intraframe-coded video frame "I" at fixed intervals. Thus, interframe coding unit 23 does not only generate interframe frame data, but instead also generates intraframe data.

In contrast, in the present invention, DCT Unit 143 and Quantization unit 144 only output interframe frame data such as P and B frames. DCT Unit 141 and Quantization unit 143 outputs intraframe frame data such as I frame data. The I frame data and the P and B frames are then combined to form the broadcast video data. The I frame data is also used as substitute I frame data when the user wishes to switch broadcasts. The dedication of DCT Unit 143 and Quantization Unit 144 to only outputting intraframe frame data is advantageous because it reduces the complexity of the encoders and lowers the cost of production for the system.

Furthermore, by not encoding I frame data, DCT Unit 143 and Quantization Unit 144 do not duplicate the encoding process since I frame data is already generated by DCT Unit 141 and Quantization Unit 143. However, the broadcast video can still be produced by combining the I frame data generated by DCT Unit 141 with Quantization Unit 143. Furthermore, I frame data can still be used as substitute I frame data. This further increases the efficiencies of frame

processing since DCT Unit 143 and Quantization Unit 143 will have to generate less frames. (Pg. 41, ln. 1 – 23; Fig. 4).

More specifically, Paragraph 0127 of Satoda states:

> Although the interframe coding unit 23 inserts an intraframe-coded video frame "I" at fixed intervals (10 seconds in this example) similarly to the conventional processing, most of video frames used are interframe-coded video frames "P." On the other hand, the intraframe coding unit 22 codes every video frame by intraframe coding (every video frame is "I").

(emphasis added).

Thus, in Satoda, interframe coding unit 23 and intraframe coding unit 22 operates as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Interframe coding unit: | I | B | P | I | B | P | I |
| Intraframe coding unit: | I | I | I | I | I | I | I |

The broadcast video is chosen from interframe coding unit 23.

In contrast, the present invention can operate as follows:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| First encoding unit: | [] | B | P | [] | B | P | [] |
| Second encoding unit: | I | I | I | I | I | I | I |

The broadcast video is generated by juxtaposing the corresponding "I" frame from the output of the second encoding unit where there is a "[]" in the output of the first encoding unit. The "[]" represents the processing savings of the present invention by not redundantly generating an I frame.

As the specification of the present invention notes, "[t]his method lightens the processing load because double processing of intraframe encode the top frame of the GOP respectively in both the circuits is eliminated." (Pg. 41, lns. 20 – 22).

*Satoda* also does not disclose "an encoded video data generation unit connected to the first encoding unit and the second encoding unit to combine the substitute I frame data and the interframe frame data to form the video data."

In *Satoda*, there is no video data generation unit connected to the first encoding unit and the second encoding unit to combine the I frame data with the interframe data to form the video data. In *Satoda*, interframe coding unit 23 and intraframe encoding unit 22 generate video data independently of each other. Thus, there is no teaching of combining the two outputs to form video data. Furthermore, in *Satoda*, the interframe coding unit 23 generates I frames by itself and does not utilize the I frame from intraframe encoder 22 to supply the I frame for the video data. (¶ 0127)

In contrast, in the present invention, "the intraframe encoded data from the first circuit is output to the material selection apparatus not only as substitute I frame data from the frame, but also as part of the broadcast video data." (Pg. 41, lns. 11 – 14) That is, the I frame data from DCT Unit 141 and Quantization unit 142 is combined with the intraframe data from DCT Unit 143.

Furthermore, the Office Action admits that *Kunkel* does not teach or suggest the features of "a first encoding unit applying interframe encoding processing to a plurality of frames of moving image data, to generate only interframe frame data for the video data" or "an encoded video data generation unit connected to the first encoding unit and the second encoding unit to combine the substitute I frame data and the interframe frame data to form the video data."

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 10-17.

The Office Action rejected Claims 2-9 under 35 U.S.C. §103(a) as being unpatentable over *Kunkel* (U.S. 7,100,183) in view of *Satoda*.

*Kunkel* is directed towards sending targeted advertisements to users by sending multiple advertisements across a bandwidth with an ID tag that can be matched by the user terminal to determine which advertisement to play. (Abstract).

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 2 and 7.

With respect to Claim 7, the Office Action admits that *Kunkel* does not teach or suggest "a third encoding sub-unit generating option data substitute I frame data that corresponds to at least one frame of the option data starting from a frame that is a first frame after transmission resumption, after transmission of the secondary option data ends and before transmission of the option data resumes."

The Office Action cites to *Satoda*, however, *Satoda* also does not teach the features of the present invention. Element 20-1 in Figure 7 of *Satoda* is a contents supplying unit and does not contain any encoding units. Figure 7 depicts a distribution server 10b according to a second embodiment of *Satoda* different from distribution server 10a depicted in Figure 4. Thus, in Figure 7, content supplying unit 20-1 only includes an input unit 21 and remote transmission unit 24b as opposed to an input unit 21, intraframe coding unit 22 and interframe coding unit 23 in Figure 5. (¶ 0145) The encoding in distribution server 10b occurs not at contents supply unit 20-1, but at contents reception unit 20-2. Furthermore, contents reception unit 20-2 only contains intraframe coding unit 22, as opposed to intraframe coding unit 22 and interframe coding unit 23. (Fig. 7) Thus, contents reception unit 20-2 does not disclose a second encoding unit, much less, a third encoding unit.

With respect to Claim 18, neither *Satoda* nor *Kunkel* teach or suggest "a substitute I frame buffer connected to the second encoding unit and the transmission unit to store substitute I frame data, wherein the transmission unit transmits at least one frame's worth of the substitute I frame data to the reception terminal before resuming transmission of the video data using substitute I frame data stored in the substitute I frame buffer."

Since *Kunkel* does not teach the second encoding unit, it also does not teach a substitute I frame buffer. Furthermore, *Kunkel* only teaches that I frames should be provided for the last few seconds of the default advertisement, but does not indicate that it uses a substitute I frame buffer.

*Satoda* does not teach that there should be a buffer for substitute I frames. This is particularly noted in Paragraphs 0131–0134 in *Satoda* since it indicates that it must wait for the I frame to be generated by intraframe coding unit 22 to receive the I frame instead of being able to transmit the I frame from a buffer.

In contrast, in the present invention substitute I frame buffer 153 holds several frames' worth of substitute I frame data output by the encoder 14. (Pg. 28, lns. 19-20; Fig. 5) On receiving a substitute I frame data output request from the material judgment unit 152, the substitute I frame buffer 153 outputs substitute I frame data corresponding to the serial numbers attached to the request. (Pg. 29, lns. 1-4). This allows for a quick transmission of the I frame and reduces the need for the user to wait until the generation of the next I-frame.

With respect to Claim 19, neither *Kunkel* nor *Satoda* teach or suggest "the video data transmission apparatus of Claim 1 further comprising means for storing substitute I frame data from the second encoding unit for transmission to the transmission unit." All arguments for patentability with respect to Claim 18 are repeated and incorporated herein. Furthermore, the MPEP §2182 states that "application of a prior art reference to a means or step plus function

limitation requires that the prior art element perform the identical function specified in the claim. However, if a prior art reference teaches identity of function to that specified in a claim, then...an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function." The "means or step plus function" limitation should be interpreted in a manner consistent with the specification disclosure. See *In re Donaldson Co.,* 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994).

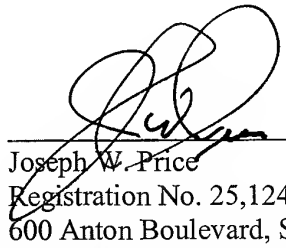
Dependent Claims 3-6 and 18-20 depend from Claims 1 and 2 and are thus allowable, too.

It is believed that the case is now in condition for allowance and an early notification of the same is requested.

If the Examiner believes that a telephone interview will assist in the prosecution of this case, the undersigned attorney can be reached at the listed telephone number.

Very truly yours,

**SNELL & WILMER L.L.P.**



Joseph W. Price
Registration No. 25,124
600 Anton Boulevard, Suite 1400
Costa Mesa, California 92626-7689
Telephone: (714) 427-7420
Facsimile: (714) 427-7799